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Japan: Population Aging and the Fiscal Challenge

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With Japan facing a demographic crisis, government finances—stretched to the limit to keep the economy afloat—have to cope with the rising strain on public pension and health systems. This article looks at the economic and fiscal costs of aging in Japan.

The populations of all industrial countries are aging. As prosperity has increased, birth rates have declined, and, with the baby-boom generation about to enter retirement, public pension schemes have come under pressure to raise contribution levels or cut the size of benefits. Japan, whose population enjoys the greatest longevity worldwide, will be particularly affected. The share of elderly people as a percentage of the working population in Japan is already one of the highest in the world, whereas the fertility rate is among the lowest, implying that the age distribution of the population will shift rapidly in the coming decades. By 2025, there will be roughly one elderly person for every two persons of working age, which will leave Japan with a higher old-age dependency ratio than any other major industrial country (Table 1).

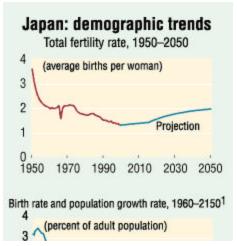
Table 1 Old-age dependency ratios: comparative projections ¹												
	Canada	France	Germany	Italy	United Kingdom	United States	Japan					
2000 2025	20 36	28 41	25 36	28 43	27 36	21 33	27 47					
Table 2 General government finances, 1999												

(percent of GDP)												
	Canada	France	Germany	Italy	United Kingdom	United States	Japan					
Actual balance Structural balance	2.8 3.3	-1.8 -0.8	-0.7 ²	-1.9 -0.5	0.3 0.1	0.01 ²	-9.21 ²					
Gross debt Net debt	88.1 56.7	58.6 49.0	61.1 52.4	114.9 108.8	44.8 39.0	62.4 50.6	125.4 38.1					
Net debt, excluding social security ³			53.1			59.1	87.9					
Source for Tables 1 and 2: United Nations, 1996, World Population Prospects 1950-2050 (New York). 1 Number of elderly (65 years and older) as a percentage of the working-age population (20-64 years). 2 Excluding social security. 3 denotes data not available.												

As this demographic shock unfolds, Japan will face substantially greater fiscal challenges than other countries. While most industrial nations have successfully reduced government deficits during the past decade, Japan's fiscal situation deteriorated dramatically following the government's efforts to resuscitate the economy. The immediate task will be to return the government deficit to a sustainable level, which will be complicated by rising social security benefit payments and the need to avoid an abrupt shift in the fiscal stance that could jeopardize growth prospects. Even after the overall fiscal situation has stabilized, however, the government still faces the long-term task of preserving the solvency of the social security system.

The expected population decline . . .

A central feature of Japan's demographics is a long-run decline in fertility. In the postwar era, the total fertility rate—defined as the average number of births per woman—experienced a sharp decline in a single 10-year span, falling from over 3¹/₂ births in 1950 to just 2 births in 1960 (see chart, top panel). The decline has since



continued at a somewhat slower pace, but the fertility rate has now dropped well below the replacement rate. This decline is often attributed to three economic factors: a decrease in the salary gap between men and women, difficulties reconciling work with child rearing, and the generous social security system that has increased the financial independence of the elderly and made them less reliant on the support of their children. Most projections have assumed that the fertility rate would eventually stabilize and increase toward the replacement rate, so that the population would be stationary by the latter half of this century. However, earlier projections have proved somewhat overoptimistic, and the time frame in which the fertility rate is expected to recover has been pushed back repeatedly in recent years.

The implication of the dramatic fall in fertility is that, for some time to come, fewer young Japanese adults are expected to enter the economy. Redefining "births" as the inflow of young adults into the economy, the middle panel of the chart shows the historical and projected evolution of Japan's "birth rate" since 1960. The inflow of young adults as a share of the adult population (age 15 and older) has declined significantly over the past 40 years; even assuming a modest recovery in fertility over the next 50 years, the "birth rate" is projected to remain far below historical levels well into the next century. This does not assume any population increase from immigration, which has alleviated demographic pressures elsewhere.

Japan's demographics imply not only an aging population but also a declining one. With fewer young adults expected in the future, the proportion of working-age people will diminish over time and the population's average age will increase. In addition, fertility rates have already fallen to such an extent that the adult population and workforce can be expected to decline for much of the twenty-first century despite an expected increase in life expectancy (from 81 years at present). The bottom panel of the chart shows the ratio of Japan's elderly dependents (65 years and older) to the adult population, which is projected to rise dramatically and cause Japan's population to age more rapidly than the populations of the other major industrial countries.

... will lead to shrinking economic output

There is a broad consensus among economists that demographic changes will reduce output growth and limit increases in economic welfare. A shrinking population is associated with lower employment and output, although rising

capital intensity, productivity increases, and higher labor participation rates could mitigate the impact on per capita incomes. On the basis of long-term simulations produced by the IMF's world macroeconomic model (MULTIMOD), Japan's demographics imply that the level of real GDP will fall by a cumulative 20 percent over the next century compared with a baseline simulation with a stationary population. The output costs of aging will reach almost ¹/₂ of 1 percentage point in lower annual GDP growth between 2025 and 2075, when the demographic changes are expected to be most pronounced. In per capita terms, GDP is expected to drop by about 5 percent relative to the baseline scenario, primarily because the percentage decline in effective labor is larger than the fall in the number of workers, given the aging of the workforce and the differences in labor productivity and labor supply across age groups implicit in Japanese age-earnings profiles.

As in previous studies, the simulations suggest that investment and saving levels decline with GDP in the long run. The fall in investment reflects a desire to shed capital in the face of declining labor and output in the economy; the rate of investment as a share of GDP, though, is more or less unchanged. Contrary to earlier findings, however, saving rates do not necessarily decline as the population ages. Despite a higher proportion of elderly, who tend to save less, the decline in the inflow of young adults (who tend to consume at higher rates) and the increase in longevity (which tends to lengthen planning horizons) act to raise private saving rates. Consequently, as long as the government is able to keep the fiscal deficit under control, Japan's current account surplus need not decline appreciably as its demographic changes continue to unfold.

The fiscal problem

Japan's public finances worsened dramatically during the 1990s, however, and the government is not in a position to cope well with an aging population. Tax revenues plunged after the collapse of the asset-price bubble in the early 1990s, and expenditures have been driven upward by economic stimulus measures—above all, public works spending—and by the costs of assuming the liabilities of a number of failed financial institutions. Although the pension system still runs a surplus and owns substantial assets (around 50 percent of GDP), these are more than offset by future pension claims. Excluding the social security system, the general government deficit amounted to 9 percent of GDP in 1999, and net debt has reached close to 100 percent of GDP, which is among the

highest for industrial countries (Table 2). The ratio of debt to GDP has roughly doubled over the past decade, and markets have been concerned that its true level could be even higher, given that the government might have to cover contingent liabilities from loan guarantees and losses by public sector enterprises.

The government has taken some steps to prepare for the demographic change. The recently legislated pension reform (approved by the Diet in March 2000) contained provisions to cut lifetime pension benefits by around 20 percent for future retirees, particularly through a 5 percent reduction in benefit levels; a gradual increase, beginning in 2013, of the age of eligibility from 60 to 65 for earnings-related pension payments; and full indexation of pension increases to the consumer price index instead of disposable income. Although government transfers to the basic pension scheme are to be raised to one-half of basic pension benefits from one-third starting in 2004, this has reduced the government's unfunded pension liabilities (previously estimated at around 100 percent of GDP) by a third. However, further contribution rate increases will be necessary to prevent pension assets from being depleted, and substantial reforms will also be needed to cope with fast-growing public health expenditures.

On the basis of simulations using the current benefit and transfer structure, contributions to the main wage-based employee pension system are expected to increase from 17¹/₂ percent currently to almost 30 percent over the next 50 years. Medical contribution rates would have to rise by a similar proportion, mainly as a result of the steep rise in old-age medical costs. Despite these increases, financial balance in the social security system would depend on a doubling of government transfers to more than 5 percent of GDP a year, which illustrates that the fiscal outlook will become considerably more difficult as the demographic transition sets in.

Once the economy has recovered, the government will need to accord high priority to fiscal consolidation and the stabilization of public debt before population aging intensifies sometime after 2010. Even assuming that the government manages to reduce its fiscal deficit to about 3 percent of GDP within a decade, however, net debt is likely to stabilize only after reaching around 120 percent of GDP—a level that would leave public finances vulnerable to interest rate shocks and policy slippages. While a faster pace of consolidation would be desirable, the problem for the authorities lies in addressing the

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fiscal imbalance in a way that will not jeopardize the nascent economic recovery. In 1997, the last attempt at fiscal consolidation had to be abandoned because raising the consumption tax rate and cutting public works spending, among other factors, weakened Japan's economic recovery.

Policy options

Although the results of long-term simulations are tentative at best, it is clear that a policy of slow debt consolidation and gradual social security reform would be a long-term drag on living standards, because of economic disincentives posed by high social security contribution rates and indirect tax increases necessary to finance rising government transfers and interest payments. What could be gained by pursuing different policies and at what cost?

Social security. Macroeconomic simulations suggest that reducing pension and health benefits, coupled with lowering social security contributions, would be preferable to maintaining the present generous benefit levels, in terms of both growth and economic welfare measures. While benefit cuts would imply short-term output costs (because consumption would drop as forward-looking consumers increased their saving for retirement), the positive long-term effects on output would be substantially larger, owing to a fall in interest rates that would boost investment. Moreover, a solution that reduced payroll deductions would clearly be more equitable from the point of view of younger workers.

In contrast to benefit cuts, a reduction in social security contributions financed through a consumption tax increase would have mixed effects on private consumption and wealth. There would be less of a buildup in private savings, because pension financing would be partly shifted from workers to pensioners, who generally tend to save less. Growth would be somewhat higher than in a system with higher social security contributions, mainly because the labor supply would increase as a consequence of lower payroll taxes. (Historical data indicate that female employment, in particular, reacts to changes in disposable income.) However, a rise in interest rates would lead elderly consumers—who would enjoy higher returns on their assets—to increase consumption. The resulting decline in the current account balance would depress financial wealth through a drawdown of foreign assets, which would eventually imply a drop in consumption relative to the baseline, although only toward the end of the century.

Fiscal consolidation. In view of Japan's long-term fiscal imbalance, any move to address the fiscal deficit will not only have a direct impact on aggregate demand, but will also affect individuals' future saving behavior. Given the slow revival of confidence after a long period of stagnation, any recovery in Japan is likely to be fragile and prone to reversals. The choice of policies for stabilizing the fiscal situation is therefore important, especially if the government decides to pursue a somewhat faster pace of consolidation to reduce its exposure to fiscal risks.

Since Japan's government sector is already relatively small (the large Fiscal Investment and Loan Program is not part of the general government sector and is thus excluded from the simulation), there are essentially three options for reducing the fiscal deficit: (1) cuts in public investment (which is significantly higher as a share of GDP in Japan than in other major industrial countries); (2) a broadening of the direct tax base (with taxpayers benefiting from large income tax deductions and exemptions); and (3) increases in the consumption tax rate (which, at 5 percent, is still relatively low by international standards). Again, our macroeconomic simulation framework can be used to look at the costs and benefits of these strategies.

The results suggest that ambitious debt stabilization could lead to substantial short-term output costs. This is particularly true for public investment cuts, although these would also generate the strongest long-term welfare gains. From a political point of view, investment cuts would appear to offer an easier way of reducing the deficit, given increasing public dissatisfaction with public works projects. However, economically, it would be less risky to pursue consolidation through a careful policy mix that would need to include tax increases to limit the impact on aggregate demand. In terms of tax measures, the simulations indicate that increasing the consumption tax would be somewhat less beneficial than broadening the direct tax base. This highlights the fact that the value-added tax—although generally considered to be close to an optimal tax—is distortionary in that it introduces a wedge between producer and consumer prices. The estimated efficiency losses that would result from broadening the direct tax base are smaller, although only slightly.

Conclusion

Demographic changes will be a defining feature in Japan for

the foreseeable future. A sustained decline in fertility rates underlies a rapid aging and dwindling of Japan's population that can be expected to continue well into this century. This dramatic demographic shift is likely to have profound social and economic implications, including slower growth in output for some time. High public debt and adverse population dynamics increasingly constrain the government's room for maneuver, suggesting that strong policy adjustments will eventually be required to put public finances back on a sustainable footing. Reforms currently being implemented in the pension and health systems are a step in the right direction, but further measures will be needed to avoid a large increase in payroll taxes and government transfers that would distort incentives and hamper growth.

Ambitious debt stabilization could potentially result in substantial short-term output costs, posing a risk to the recovery. Therefore, as long as private demand remains fragile, fiscal adjustment policies should be implemented cautiously. However, once the recovery is on a sound footing, Japan will need to implement a long-term fiscal strategy to make public finances sustainable. Public investment cuts, measures to broaden the income tax base, some increase in the consumption tax, and reductions in social security benefits are likely to be the key building blocks of a longer-term solution.

This article is based on the authors' "Japan: Demographic Shock and Fiscal Sustainability," which is forthcoming in the IMF's Working Paper series.

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